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ASSESSMENT OF BORROWER'S CREDIT CAPACITY IN THE INTERNATIONAL FINANCIAL ENVIRONMENT
ОЦІНКА КРЕДИТОСПРОМОЖНОСТІ ПОЗИЧАЛЬНИКА В МІЖНАРОДНОМУ ФІНАНСОВОМУ СЕРЕДОВИЩІ

Summary. *Introduction. Traditional credit assessment methods are becoming less effective in international markets, where risks are increasing due to political instability, different legal systems, cultural differences and currency*

volatility. Therefore, it is necessary to implement the latest methods, tools and technologies to reduce decision-making time, increase forecast accuracy and reduce credit risk. The digitalization of banking operations, the automation of financial statement analysis, the use of artificial intelligence and machine learning for credit risk modeling have gained particular importance over the past decade. This opens up new opportunities for improving assessment systems, while at the same time raising challenges regarding data security, algorithm transparency and compliance with ethical standards.

The purpose of the article is to substantiate approaches to assessing the creditworthiness of a borrower in the international financial environment.

Materials and methods. Analytical reports of international financial institutions, such as the International Monetary Fund, the World Bank and the Basel Committee on Banking Supervision, which contain current approaches to credit risk regulation, were the main source. In addition, scientific articles on banking, risk management and analytics were used, as well as official data from leading commercial banks, rating agencies and financial regulators of various countries.

The study used a mixed approach: comparative analysis of international creditworthiness assessment models, analysis of regulatory documents, statistical methods (clustering, regression) and elements of economic and mathematical modeling.

Results. The study found that, despite the Basel Accords recommendations, international banks' creditworthiness assessment methods continue to vary. Most banks use standard financial indicators, such as solvency, liquidity and payment history, for assessment. However, in the light of globalization and increasing risks, these approaches are proving ineffective in accurately predicting credit risk. According to the analysis, digital technologies, in particular systems based on artificial intelligence and machine learning, allow banks to make assessments more accurate, speed up the decision-making process and reduce the number of

problem loans. At the same time, the transparency and morality of decision-making are questionable. In addition, it was found that only a small number of banks include non-financial factors, such as ESG indicators, industry risks and business reputation, in their models.

Discussion. Non-financial factors such as ESG indicators, as well as the transparency and ethics of algorithmic decisions, will become increasingly important. In addition, the harmonization of assessment methodologies at the international level will become a pressing task, which will contribute to increasing the efficiency of cross-border lending.

Key words: *creditworthiness, banking system, international lending, risk assessment, artificial intelligence, financial analysis, automation, credit risk.*

Анотація. *Вступ. Традиційні методи оцінювання кредитоспроможності стають дедалі менш ефективними на міжнародних ринках, де ризики зростають через політичну нестабільність, різні правові системи, культурні відмінності та валютну нестабільність. Таким чином, необхідно впровадити найновіші методи, інструменти та технології, щоб скоротити час ухвалення рішень, підвищити точність прогнозів і зменшити кредитний ризик.*

Цифровізація банківських операцій, автоматизація аналізу фінансової звітності, застосування штучного інтелекту та машинного навчання для моделювання кредитного ризику набули особливої ваги впродовж останнього десятиліття. Це відкриває нові можливості для вдосконалення систем оцінювання, водночас породжуючи виклики щодо безпеки даних, прозорості алгоритмів і дотримання етичних норм.

Метою статті є обґрунтування підходів до оцінки кредитоспроможності позичальника в міжнародному фінансовому середовищі.

Матеріали і методи. Аналітичні звіти міжнародних фінансових інституцій, таких як Міжнародний валютний фонд, Світовий банк і Базельський комітет з банківського нагляду, які містять поточні підходи до регулювання кредитного ризику, були основним джерелом. Крім того, були використані наукові статті з банківської справи, ризик-менеджменту та аналітики, а також офіційні дані провідних комерційних банків, рейтингових агентств і фінансових регуляторів різних країн.

У дослідженні застосовано змішаний підхід: порівняльний аналіз міжнародних моделей оцінки кредитоспроможності, аналіз нормативних документів, статистичні методи (кластеризація, регресія) та елементи економіко-математичного моделювання.

Результати. Більшість банків використовують стандартні фінансові показники, такі як платоспроможність, ліквідність і історія платежів, для оцінки. Однак у світлі глобалізації та зростання ризиків ці підходи виявляються неефективними для точного прогнозування кредитного ризику.

Згідно з результатами аналізу, впровадження цифрових технологій, зокрема штучного інтелекту та машинного навчання, сприяє підвищенню точності оцінювання, прискоренню кредитних рішень і зниженню рівня дефолтів. Водночас постають питання щодо прозорості алгоритмів та етичних аспектів. Крім того, лише обмежене число банків інтегрує нефінансові показники, зокрема ESG-критерії, галузеві ризики та ділову репутацію.

Перспективи. Зростатиме значення нефінансових чинників, таких як ESG-показники, а також прозорості й етичності алгоритмічних рішень. Крім того, актуальним завданням стане гармонізація методик оцінювання на міжнародному рівні, що сприятиме підвищенню ефективності транскордонного кредитування.

Ключові слова: *кредитоспроможність, банківська система, міжнародне кредитування, оцінка ризиків, штучний інтелект, фінансовий аналіз, автоматизація, кредитний ризик.*

Problem statement. The modern international banking system functions amid economic complexity, market volatility, and heightened regulatory demands, making effective creditworthiness assessment central to risk management and financial stability. Existing models, however, often lack flexibility and fail to account for cross-border risks such as political, legal, and currency factors. Traditional methods based on financial statements and payment history are becoming less effective due to digitalization and the growing influence of non-financial data. Technological tools AI, machine learning, automated scoring, and big data offer enhanced precision and speed but require critical evaluation for reliability and regulatory compliance. The absence of a unified global approach further complicates cross-border lending and institutional trust. Therefore, there is a pressing need to develop a more adaptive, technologically integrated, and standardized framework for international credit assessment.

Analysis of recent research and publications. The issue of assessing the creditworthiness of borrowers is widely covered in the scientific literature, in particular in the works of foreign and domestic researchers, which indicates its high relevance. It is also worth noting the contribution of the Basel Committee on Banking Supervision, which proposed a regulatory framework for credit risk management within the framework of the Basel II and III agreements [5], which are actively implemented in the practice of international banks.

In more modern studies, the focus is gradually shifting to the automation of assessment processes and the application of the latest technologies, such as big data, artificial intelligence and machine learning algorithms. Research by M. Gupta and P. Singh [2] demonstrates the benefits of integrating non-financial indicators, including behavioral and social factors, into the assessment system.

Ukrainian scientists, in particular O. Baranovsky [1], S. Kozmenko [3] and I. Lyutova [4], study the adaptation of international methods to the domestic banking system and emphasize the need to modernize existing models against the backdrop of digitalization and the growth of cyber risks. Their works indicate the limited effectiveness of traditional tools in unstable economies and emphasize the importance of building flexible, risk-oriented approaches to assessing creditworthiness.

The purpose of the article is to substantiate approaches to enhancing the creditworthiness assessment process in the international banking system, taking into account modern technological capabilities, regulatory requirements, and the specifics of cross-border lending, as well as to formulate recommendations for the implementation of effective, adaptive, and transparent credit analysis models.

Presentation of the main material. In globalized banking sector and dynamic financial markets, there is a growing need to update approaches to creditworthiness assessment. International banks face challenges related to a variety of legislative requirements, currency volatility, political risks, and differences in financial reporting. Traditional methods based on financial reporting and credit history remain the basis, but often do not take into account important qualitative factors, such as the borrower's behavior, market positioning, and development prospects.

In this context, international banks are increasingly using comprehensive models that combine financial and non-financial factors. The assessment of a corporate borrower includes not only financial indicators (profitability, debt coverage, liquidity), but also the management structure, development strategy, market position, innovation and compliance with ESG criteria [12]. This approach provides a deeper understanding of the risks and the company's ability to function effectively in conditions of instability.

The mass use of digital models also creates a number of problems. First of all, this is the issue of transparency of algorithms (the so-called "black box" of AI

models) [5], difficulties with validation of results, possible biases built into the algorithm, as well as the need to comply with legal requirements for the protection of personal data and the prevention of discrimination. Therefore, the improvement of creditworthiness assessment must combine technological advantages with ethical and legal standards. One of the key problems is the lack of global standardization of creditworthiness assessment methods. Differences in national criteria complicate the comparability of assessments and hinder the formation of a single cross-border credit market. Overcoming these barriers requires harmonization of practices with the recommendations of the Basel Committee and other supranational regulators, as well as the development of a universal system of ratings and models that take into account both global and local factors.

As a result of the analysis, a conceptual model was developed, based on sources Eccles R. G., Giese G [7], Kaminsky G., Reinhart C. [9]: basic financial diagnostics of the borrower, integration of non-financial factors (including ESG, reputational risks, industry context), assessment of the macroeconomic and country environment, use of digital forecasting tools and dynamic data updates.

The proposed model allows creating a more objective, flexible and adaptable creditworthiness assessment system for international banks, capable of effectively responding to modern challenges of the financial market.

In the context of the transformation of financial markets and the globalization of banking operations, it is urgent to improve approaches to assessing the creditworthiness of borrowers [15] .The international banking system faces new challenges: political instability, exchange rate fluctuations, uneven economic development, regulatory fragmentation and risks of the digital environment. In such conditions, traditional approaches to assessment, based only on financial reporting, do not provide the proper level of accuracy and adaptability.

Modern assessment models increasingly integrate both quantitative and qualitative indicators. Table 1 below provides an example of a comparison of traditional and modernized approaches to creditworthiness assessment.

Table 1

Comparison of traditional and modern approaches to creditworthiness assessment

Parameter	Traditional approach	Modern approach
Main data sources	Financial statements, credit history	Financial and non-financial data
Tools	Coefficient analysis, ranking	Machine learning, AI, behavioral models
Update frequency	Periodic (quarterly, annually)	Dynamic, real-time
Human factor	High (expert evaluation)	Minimized (automated solution)
External environment	Often ignored	Takes into account (country risk, ESG, reputation, etc.)
Versatility	Limited geographically or industry-wise	Scalable, adaptable to different markets

Source: created based on source analysis Khandani, A. E., Kim, A. J., Lo, A. W. [10]

As can be seen from Table 1 digital technologies have created the conditions for automating the assessment process. Banks are actively implementing credit scoring models based on machine learning algorithms, capable of analyzing thousands of variables - from transaction activity to the borrower's socio-economic profile.

One of the areas of optimization is the inclusion of ESG [14] indicators (environmental, social and governance factors) in the assessment structure. Companies that adhere to the principles of sustainable development demonstrate more stable financial results in the long term, which is confirmed by data from the World Bank [15] and rating agencies. Thus, credit policy must adapt to the new requirements of investors and regulators, including "green financing".

Below is a structured table of key assessment components, their sub-criteria, measurement methods, weighting factors, and interpretative guidelines.

Table 2

Components of assessment of borrower's credit capacity in the international financial environment

Component	Sub-criteria	Evaluation Metric	Interpretative Guidelines
Macroeconomic Indicators	GDP growth rate, Inflation rate, Exchange rate volatility	Quantitative analysis via economic reports	Assess the economic stability of the borrower's country of operation.
Financial Ratios	Debt-to-equity ratio, Interest coverage ratio, Return on assets	Ratio analysis based on financial statements	Measure the borrower's solvency and profitability.
Credit History	Past defaults, Timeliness of repayments, Credit score	Historical credit performance records	Evaluate reliability and risk based on historical data.
Legal and Regulatory Environment	Compliance level, Legal disputes, Transparency index	Qualitative and semi-quantitative review	Determine the borrower's exposure to legal and regulatory risk.
Management and Governance	Experience, Ethical standards, Corporate governance practices	Qualitative assessment via interviews and documentation	Assess management's capability and risk culture.

Source: author's development

As can be seen from Table 2, financial and macroeconomic indicators are of key importance, which indicates the priority of quantitative assessment. At the same time, taking into account credit history, legal environment and management ensures a comprehensive approach to creditworthiness assessment.

The current problem remains the lack of global unification of approaches to assessing creditworthiness. Differences in banks' requirements for financial indicators, documentary evidence and scoring parameters complicate cross-border cooperation, especially for SMEs. It is necessary to create an international methodological platform with the ability to adapt to local markets.

Modern banks are increasingly using alternative data (alt-data), in particular, network activity, online sales volumes, geolocation behavior and

customer loyalty indicators [14]. Such data, for example from Amazon or Alibaba platforms, allow assessing the dynamics of small business turnover even in the absence of complete financial reporting, which is especially important in countries with low SME formalization.

Improving models should be accompanied by reviewing the bank's risk appetite, setting adaptive risk thresholds and updating early warning systems. Artificial intelligence tools are able to detect signs of declining creditworthiness several months before default occurs, which allows for timely initiation of restructuring or replacement of collateral.

Banks should also consider cultural aspects of doing business: for example, reputational stability is important in Asian countries, political connections in Latin America, and compliance with ESG regulations in the Europe [8]. This creates a new dimension in the interaction between the lender and the borrower, where financial analysis is no longer the only assessment criterion.

Conclusions and prospects for further research. The study found that traditional approaches to creditworthiness assessment are gradually losing their effectiveness in the face of globalization, digitalization, and the increasing complexity of financial risks. The use of modern technologies, such as artificial intelligence, big data processing, ESG analytics, and behavioral models, allows for significant optimization of the assessment process, ensuring higher accuracy, adaptability, and speed of decision-making.

For the international banking system, these changes are of strategic importance, as they provide better control over credit risks, reduce the likelihood of systemic crises and contribute to the stability of financial institutions. Meanwhile, digitalization poses a number of challenges, including the need for data protection, the risk of algorithmic bias and compliance with the laws of different jurisdictions. This raises new requirements for the formation of banking digital ethics, model auditing and regulation.

Thus, further research should be interdisciplinary, covering both the economic, technological and legal spheres, which will allow creating a reliable, effective and ethical system for assessing creditworthiness in the context of global financial interdependence.

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